

WHAT IS CLAIMED IS:

1. A wireless data transmission method, comprising:
providing a first data segment;
verifying that the first data segment includes a
5 desired constant;
providing a variable second data segment that
indicates making a key or breaking a key;
providing a third data segment to indicate a
context code; and
10 providing a fourth data segment as an error check
of the second and third data segments.
2. The method of Claim 1, wherein the desired
constant of the first data segment is hexadecimal FF.
3. The method of Claim 1, wherein the second data
15 segment indicates releasing all pressed keys or releasing a
single pressed key.
4. The method of Claim 1, wherein the second data
segment includes a value of hexadecimal 80.
5. The method of Claim 1, wherein the second data
20 segment is between hexadecimal 81 and hexadecimal FE.
6. The method of Claim 1, wherein the second data
segment is between hexadecimal 01 and hexadecimal 7E.
7. The method of Claim 1, wherein the third data
segment is between hexadecimal 00 and hexadecimal FE.
- 25 8. The method of Claim 1, wherein the fourth data
segment is used for a cyclic redundancy checksum algorithm.
9. A method for downloading data through a keyboard,
comprising:
providing in the keyboard a communication
30 interface for establishing a communication link with a
mobile device;
providing a storage access device for retrieving
data from a storage medium; and

providing a controller coupled to the communication interface and the storage access device, the controller being programmed to:

- 5 using the communication interface, retrieve identification information from a mobile device; according to the identification information, retrieve from the storage medium a program code; and
- 10 using the communication interface, transmit to the mobile device the program code.

10. The method of Claim 9, wherein the storage medium is removable.

11. The method of Claim 9, wherein the communication interface comprises a USB interface.

- 15 12. The method of Claim 9, wherein the communication interface comprises a wireless interface.

13. The method of Claim 12, wherein the wireless interface is selected from the group consisting of an infrared communication interface, a Bluetooth™ interface, a WiFi (Wireless LAN) interface, a radio frequency interface, and a ZigBee interface.

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14. The method of Claim 9, wherein the program code includes software for programming special function keys when operating the keyboard.

- 25 15. The method of Claim 14, wherein the special function keys include multimedia control keys for the mobile device.

16. The method of Claim 14, wherein the software for programming special function keys automatically customizes programmable keys of the keyboard.

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17. The method of Claim 9, wherein the program code includes keyboard software, video, audio, or multimedia files.

18. The method of Claim 9, wherein the program code includes display-format conversion tables for various mobile devices to display video on a screen of the mobile device.

19. The method of Claim 18, wherein a display-format
5 conversion for a specific mobile device is automatically selected.

20. The method of Claim 9, wherein the program code is selected from the group consisting of application software, data synchronization software, and data format conversion
10 software.

21. The method of Claim 9, wherein the mobile device executes the transmitted program code, and displays, if needed, the transmitted content.

22. A method for interfacing with a mobile device in
15 communication with a keyboard, comprising:

providing in the keyboard a communication interface for establishing a communication link with a mobile device;

20 providing a plurality of storage access devices for writing data to storage media; and

providing a controller coupled to the communication interface and the plurality of storage access devices, the controller being programmed to:

25 using the communication interface, retrieve from the mobile device data to be synchronized; and

using the controller, send the data to be synchronized to the plurality of storage access devices.

30 23. The method of Claim 22, wherein the communication interface comprises a USB interface.

24. The method of Claim 22, wherein the communication interface comprises a wireless interface.

25. The method of Claim 24, wherein the wireless interface is selected from the group consisting of an infrared communication interface, a Bluetooth™ interface, a WiFi (Wireless LAN) interface, a radio frequency interface, and a
5 ZigBee interface.

26. A method for interfacing between mobile devices in communication with a keyboard, comprising:

providing in the keyboard a plurality of communication interfaces for establishing a
10 communication link with a plurality of mobile devices;
and

providing a controller coupled to the plurality of communication interfaces, the controller being programmed to synchronize data between the plurality of
15 mobile devices using the plurality of communication interfaces.

27. The method of Claim 26, wherein a communication interface of the plurality of communication interfaces comprises a USB interface.

20 28. The method of Claim 26, wherein a communication interface of the plurality of communication interfaces comprises a wireless interface.

29. The method of Claim 28, wherein the wireless interface is selected from the group consisting of an infrared communication interface, a Bluetooth™ interface, a WiFi (Wireless LAN) interface, a radio frequency interface, and a
25 ZigBee interface.

30. A universal keyboard, comprising:
a docking structure for accommodating a mobile
30 device;
an infrared (IR) head clamp for receiving and transmitting data over a wireless link, the IR head clamp capable of being positioned over an IR interface of the mobile device;

a keypad that is physically coupled to the docking structure, and providing electrical signals representing the keys on the keypad that are depressed by an external agent; and

5 a controller circuit receiving the electrical signals and converting the electrical signals into data for transmission by the IR head clamp over the wireless link.

31. The universal keyboard of Claim 30, wherein the IR
10 head clamp includes an IR head and a clamp body.

32. The universal keyboard of Claim 31, wherein the IR head includes a light emitting diode (LED).

33. The universal keyboard of Claim 31, wherein the IR head includes an IR transceiver, an LED emitter, and a PIN
15 diode detector.

34. The universal keyboard of Claim 31, wherein the IR head is operably coupled to the clamp body by a universal joint.

35. The universal keyboard of Claim 31, wherein the IR
20 head is operably coupled to the clamp body by one or more rotating joints.

36. The universal keyboard of Claim 31, wherein the clamp body is capable of being flexed open and closed.

37. The universal keyboard of Claim 31, wherein the
25 clamp body includes a first member coupled to a second member, the first member and the second member capable of being moved apart and together along a joint.

38. A universal keyboard, comprising:
a docking structure for accommodating a mobile
30 device;
an arm having a first end mounted on the docking structure at one end by a connector, and having a second freely movable end, such that the second freely

movable end of the arm traces an arc centered about the connector over a predetermined range of angles;

an infrared (IR) head mounted on the freely movable end of the arm for receiving and transmitting data over a wireless link;

a keypad that is physically coupled to the docking structure, and providing electrical signals representing the keys on the keypad that are depressed by an external agent; and

a controller circuit receiving the electrical signals and converting the electrical signals into data for transmission by the IR head over the wireless link.

39. The universal keyboard of Claim 38, wherein the connector includes a gear structure with teeth and a separate teeth structure.

40. The universal keyboard of Claim 38, wherein the connector includes an electrical wire in the form of a stretchable coil.

41. The universal keyboard of Claim 38, wherein the IR head is capable of bending and/or rotating in a plurality of angles relative to the arm.

42. The universal keyboard of Claim 38, wherein the IR head includes a wide-angle LED.

43. The universal keyboard of Claim 38, wherein the IR head includes an IR transceiver, an LED emitter, and a PIN diode detector.

44. The universal keyboard of Claim 38, wherein the IR head is capable of receiving and sending data at a high rate of speed.

45. The universal keyboard of Claim 38, wherein the IR head is powered by a battery that can be solar-powered and/or recharged.

46. The universal keyboard of Claim 38, wherein the keys of the keyboard are voice-activated.

47. The universal keyboard of Claim 38, further comprising an anti-skid surface for mounting the mobile device, the surface being located between the docking structure and the keypad.

48. The universal keyboard of Claim 38, further comprising an anti-skid surface on the docking structure for mounting the mobile device.

49. The universal keyboard of Claim 38, further comprising movable holders mounted on the docking structure to accommodate any of a plurality of mobile devices, wherein the holders are made of a rubber material or a metallic material coated with anti-skid material.

50. A keyboard, comprising:

a communication interface for establishing a communication link with a mobile device;

a storage access device for retrieving data from and writing data to a storage medium; and

a controller coupled to the communication interface and the storage access device, the controller being programmed to:

using the communication interface, retrieve identification information from the mobile device;

according to the identification information, retrieve from the storage medium a program code; and

using the communication interface, transmit to the mobile device the program code.

51. The keyboard as in Claim 50, wherein the storage access device is a detachable module.

52. The keyboard as in Claim 51, wherein the detachable module includes a plurality of storage access devices.

53. The keyboard as in Claim 50, wherein the storage medium is removable.

54. The keyboard as in Claim 50, wherein the communication interface comprises a USB interface.

5 55. The keyboard as in Claim 50, wherein the communication interface comprises a wireless interface.

56. The keyboard as in Claim 55, wherein the wireless interface is selected from the group consisting of an infrared communication interface, a Bluetooth™ interface, a WiFi (Wireless LAN) interface, a radio frequency interface, and a ZigBee interface.

57. The keyboard as in Claim 50, wherein the program code includes data synchronization software.

15 58. The keyboard as in Claim 50, wherein the program code includes data format conversion software.

59. The keyboard as in Claim 50, wherein the program code includes software for operating the keyboard keys, or for programming special function keys when operating the keyboard.

20 60. The keyboard as in Claim 50, wherein the program code includes video, audio, or multimedia files.

61. The keyboard as in Claim 50, further comprising a plurality of access devices for concurrent access to a plurality of storage media.

25 62. The keyboard as in Claim 61, wherein the controller is further programmed to:

using the communication interface, retrieve from the mobile device data to be synchronized; and

30 using the controller, send the data to be synchronized to the plurality of storage access devices.

63. The keyboard as in Claim 50, further comprising a plurality of communication interfaces for concurrent access to a plurality of mobile devices.

5 64. The keyboard as in Claim 63, wherein the controller is further programmed to synchronize data between the plurality of mobile devices using the plurality of communication interfaces.